

MISCELLANEOUS NOTES AND DESCRIPTIONS OF ICHNEUMON-FLIES

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This paper consists of the descriptions of one new genus and thirteen new species of North American Ichneumonidae, four new species from the Neotropical Region, short revisions of the North American species of several genera, several generic transfers, and the synonymizing of two European species.

Genus ISCHNOPSIDEA Viereck

Ischnus AUTHORS, not Gravenhorst.

Rhexidermus (Foerster) ASHMEAD, Proc. U. S. Nat. Mus., vol. 30, 1906,
p. 171, pl. 12, fig. 2.

Two specimens of a species referable to this genus have recently come to hand. They are specifically distinct from *coloradensis* Cushman as well as from the unnamed species referred to in the description of *coloradensis*.

ISCHNOPSIDEA ALBERTA, new species

Distinguishable at once from *coloradensis* Cushman by the larger eyes and consequently shorter malar space, the entirely black antennae, and the relatively longer tergites, as well as by many of the following characters:

Female.—Length 7.5 mm.; antennae (tips broken—but in the paratype about two-thirds as long as body).

Head large; temples nearly as broad as eyes, slightly sloping, convex; eyes large, parallel within, their long diameter about four times the length of malar space; face densely, transversely striato-punctate, head otherwise, including clypeus, sparsely punctate and polished. Thorax shining, punctate, metapleurum densely so; scutellum polished, almost impunctate, margined to beyond middle; propodeum with basal areas punctate, middle areas polished, apical areas trans-

versely striate, and pleural areas rugulose opaque; areola pentagonal, less than twice as long as basal area. Abdomen slender, third tergite fully as long as broad; postpetiole longitudinally rugulose; gastrocoeli nearly confluent medially, abdomen densely, opaquely punctate; ovipositor sheath about half as long as first segment.

Black; antennae entirely black; mandibles, palpi, tegulae, humeral and subapical lines whitish or pale stramineous; legs testaceous, the distal joints of trochanters paler, hind tibia and tarsus infusate, the tibia not paler at base.

Type locality.—Edmonton, Alberta.

Type.—Cat. No. 40432, U.S.N.M.

Two females collected by George Salt, the type on October 21, 1923, and the paratype on March 25, 1924.

The paratype is slightly smaller than the type and has the legs somewhat more contrastingly colored.

CRYPTUS CALIGATUS, new species

Apparently closely related to *luctuosus* Cresson, but differing at least in its black front tarsi and medially interrupted apical propodeal carina.

Female.—Length 9 mm.; antenna 8 mm.; ovipositor 2.5 mm.

Temples sharply convexly sloping, sparsely punctate, subpolished; vertex more densely punctate, subopaque; frons concave but hardly excavated, opaque reticulate rugose, without median carina, scrobes subpolished and transversely wrinkled; eyes large and bulging; diameter of lateral ocellus very slightly shorter than ocell-ocular line; face opaquely finely punctate; clypeus polished, sparsely punctate, in profile nasutiform; cheeks in front view slightly convex, their extended angle acute; malar space slightly longer than basal width of mandible, opaque shagreened with sparse, weak punctures; first joint of flagellum distinctly longer than second. Thorax dorsally and ventrally polished and slightly punctate, laterally opaque and rugoso-punctate, the speculum polished; propodeum reticulate rugose, basal lateral areas more finely so; basal carina weak, apical carina broadly obsolete medially, the angles prominent, spiracles very broadly oval; legs rather stout, the hind femur about five times as long as deep; tarsi slender, only the fourth joint narrowly cordate; abdomen finely, granularly opaque throughout except petiole which is polished dorsally and transversely rugose laterally, petiole somewhat depressed, postpetiole broad, spiracles about as close to each other as to apex; second tergite distinctly longer than broad at base; ovipositor sheath nearly as long as first two tergites.

Black; short lines on posterior and facial orbits and dot at top of eye yellow; wings uniformly, dilutely impunctate, tegulae black;

all femora and front and middle tibiae ferruginous, joints 2-5 of hind tarsus brown, legs otherwise black.

Type locality.—Calgary, Alberta.

Type.—Cat. No. 40433, U.S.N.M.

Two females collected by George Salt, the type on August 5, and the paratype on July 19, 1924.

Genus AGROTHEREUTES Foerster

Probably not generically distinct from *Spilocryptus* Thomson, of which it is sometimes treated as a subgenus. Viereck¹ uses it to replace *Cryptus* Fabricius, which he considers to be preoccupied by *Cryptus* Jurine. It is here used, in its original restricted sense, as including subapterous forms of the tribe Cryptini related to *Spilocryptus*.

No North American species referable to the genus in this restricted sense appears to have been described. The following three new species are typical, agreeing with all characters assigned to *Spilocryptus* in Schmiedeknecht's keys² except those of wing venation. Schmiedeknecht considers *Agrothereutes* a subgenus of *Spilocryptus*.

All three species have the following characters in common: Head black, granularly opaque, clypeus polished and sparsely punctate; temples strongly sloping, weakly convex; eyes large, bulging, very slightly divergent below; lower margin of antennal foramen at about lower fourth of eye; flagellum slightly thicker at apex than at base, blackish with the basal joints reddish and an incomplete annulus spanning joints 5-8 white. Thorax, except mesoscutum, scutellum, postscutellum, and mesosternum, which are shining, subopaquely roughened; propodeum with basal carina medially and pleural carinae obsolete and apical carina defined only at angles, where it is prominent; legs testaceous, hind femur at apex, and hind tibia except at extreme base fuscous, basally whitish, the same pattern but paler on middle and front tibiae. Abdomen granularly subopaque, the first tergite polished; first three tergites reddish, others black, the seventh with a median apical white spot.

KEY TO NORTH AMERICAN SPECIES

1. Thorax largely red.....*rufopectus*, new species.
Thorax black..... 2
2. First tergite fully two-thirds as broad as long; abdomen basally rufous, third tergite more or less black apically.....*slossonae*, new species.
First tergite less than two-thirds as broad as long; abdomen basally testaceous, third tergite not at all black.....*microlatus*, new species.

¹ Hym. Conn.

² Opusc. Ichn.

AGROTHEREUTES RUFOPECTUS, new species

Distinct from the other two species in its largely red thorax.

Female.—Length 6.5 mm.; antennae 4.5 mm.; ovipositor 2 mm.

Diameter of lateral ocellus nearly as long as ocell-ocular line; malar space equal to basal width of mandible; penultimate joint of flagellum nearly as thick as long; second joint of maxillary palpus half as thick as long; front wings not reaching propodeal tubercles; first tergite fully two-thirds as broad at apex as long.

Head black with facial orbits narrowly reddish; thorax dark rufous, sutures, prothorax laterally, prepectus, metapleurum below, metasternum, and basal areas of propodeum black; abdomen basally rufous, third tergite apically blackish.

Type locality.—Bilby, Alberta.

Type.—Cat. No. 40434, U.S.N.M.

One specimen collected by George Salt on June 28, 1924.

AGROTHEREUTES SLOSSONAE, new species

Female.—Length 6.5 mm.; antennae 5 mm.; ovipositor 2 mm.

Diameter of lateral ocellus about two-thirds as long as ocell-ocular line; malar space slightly longer than basal width of mandible; penultimate joint of flagellum distinctly longer than thick; second joint of maxillary palpus hardly half as thick as long; front wings fully reaching propodeal tubercles; first tergite fully two-thirds as broad at apex as long.

Head black; maxillary palpi pale testaceous; thorax entirely black; abdomen basally rufous, third tergite more or less blackish apically.

Type locality.—Franconia, New Hampshire.

Type.—Cat. No. 40435, U.S.N.M.

Two specimens probably collected by Mrs. Annie T. Slosson.

AGROTHEREUTES MICROALATUS, new species

Differs from *slossonae* in its smaller size, more slender form and shorter wings.

Female.—Length 5.5 mm.; antennae 3.5 mm.; ovipositor 1.5 mm.

Diameter of lateral ocellus little more than half as long as ocell-ocular line; malar space slightly longer than basal width of mandible; penultimate joint of flagellum distinctly longer than thick; second joint of maxillary palpus nearly three times as long as thick; front wings not reaching propodeal tubercles; first tergite less than two-thirds as broad at apex as long.

Head black; maxillary palpi pale testaceous, thorax entirely black; abdomen basally testaceous, third tergite entirely so.

Type locality.—New England.

Type.—Cat. No. 40436, U.S.N.M.

One specimen taken from the stomach of a ruffed grouse and received from the Biological Survey, United States Department of Agriculture.

ISCHNUS DODDI, new species

In Schmiedeknecht's key to genera of Cryptini this species runs with no difficulty to (*Habrocryptus* Thomson) = *Ischnus* Gravenhorst; and, except for its rather large oval propodeal spiracle, relatively shorter first flagellar joint, and narrower abdomen with relatively long apical tergites, differs structurally in no significant way from the genotype, *Ischnus porrectorius* (Fabricius).

Female.—Length 11 mm.; antennae 8 mm.; ovipositor 6 mm.

Head transverse; eyes large and slightly bulging; temples sharply receding and rather weakly convex; vertex and frons densely, finely punctate, temples sparsely punctate; eyes slightly longer than width of face, parallel within; face densely punctate, medially elevated, with a longitudinal impression on each side of the elevation; clypeus in profile nasutiform; cheeks convex; malar space two-thirds as long as basal width of mandible; antennae slender, basal joint of flagellum only slightly longer than second joint. Thorax opaque, finely confluent punctate; pronotum laterally rugulose, epomia strong; notauli long, foveolate; scutellum polished, very weakly punctate; sternauli weak, speculum small, shining, obliquely roughened; mesopleural furrow foveolate; propodeum rather coarsely reticulate rugose behind the basal carina, more finely so in front, the sculpture merging laterally into that of the metapleurum; basal carina strong, apical carina developed only laterally; all longitudinal carinae, including the pleural, wanting; spiracle rather large, oval; legs and wings normal for the genus. Abdomen elongate lanceolate, first three tergites granularly opaque; first tergite more than twice as long as broad at apex, second much longer than broad at base, postpetiole broader than long; ovipositor nearly as long as abdomen; apex elongate sagittate.

Head and thorax black with the following whitish markings; orbits, broadly on cheeks and narrowly interrupted on malar space, small spots on clypeus and at base of mandible, incomplete annulus on flagellar joints 6-9, anterior and humeral margins of pronotum, tegula at base and apex, subalar tubercle, and scutellum except at apex; wings hyaline with blackish venation, the stigma pale at base; legs ferruginous, the front coxa behind and trochanter piceous, front and middle coxae pale below. Abdomen with first two tergites entirely and third except at sides ferruginous, rest black except a broad white band at apex of fourth tergite and pale membranous margins of apical tergites.

Host.—*Cactoblastis cactorum*.

Type locality.—Piriapolis, Uruguay.

Type.—Cat. No. 40437, U.S.N.M.

Two females reared in January, 1925, by Alan P. Dodd under his No. 105.

Genus **TRICHOCRYPTUS** Thomson

Sobas FOERSTER, Verh. Nat. Ver. Preuss. Rheinl., vol. 25, 1868, p. 187—SCHMIEDEKNECHT, Ent. Nachr., vol. 16, 1890, p. 113. *Type*.—*Ichneumon cinctorius* Fabricius.

Trichocryptus THOMSON, Opusc. Ent., fasc. 5, 1873, pp. 520, 521; vol. 6, 1874, p. 609. *Type*.—*Ichneumon cinctorius* Fabricius.

Apsilops ASHMEAD, Trans. Amer. Ent. Soc., vol. 23, 1896, p. 207 (not Foerster). *Type*.—*Cryptus hirtifrons* Ashmead.

Dapanus ASHMEAD, Proc. U. S. Nat. Mus., vol. 23, 1900, p. 29 (not Foerster). *Type*.—*Ichneumon cinctorius* Fabricius.

In an earlier paper³ I argued that *Ichneumon cinctorius* Fabricius could not function as the genotype of *Sobas* Foerster on the ground that it would not agree with the characters ascribed by Foerster to his Family Cryptoidae, in which he placed the genus *Sobas*. Upon examination of Foerster's manuscript, however, I find that he actually founded his genus on *cinctorius*; and it must, I therefore think, be accepted as the type of *Sobas* in spite of its disagreement with the generic description.

Sobas Foerster is preoccupied by *Sobas* Pascoe, 1863.

As pointed out by Thomson (p. 612), the genotype will run in Foerster's key to the Phygadeuontoidae to either *Apsilops* or *Heterotypus*, depending upon whether the basal flagellar joints are considered short or long as stated in couplet 7 of the key. It will certainly not run to *Dapanus*, in which genus Ashmead placed it and of which it was considered as type by Viereck, for by the same character by which it agrees with *Heterotypus* it differs from *Dapanus*.

All published notes on the biology of species of *Trichocryptus* associate it with water. As early as 1785 Fourcroy⁴ records (*Ichneumon scirpi* Fourcroy) = *Trichocryptus cinctorius* (Fabricius) as living in its larval stage in *Scirpus*, while Henriksen⁵ records the other European species, *Trichocryptus aquaticus* Thomson as parasitic on *Hydrocampa nympheata* feeding on *Potamogeton natans*. Hart⁶ records having observed (*Cryptus cyaneiventris* Riley MS) = *Trichocryptus hirtifrons* (Ashmead) walking on the leaves of water plants both above and below the surface of the water in search for its host (*Hydrocampa*) *Nymphula oblitalis* (Walker). The dense fine pubescence of the body is apparently associated with the habit of entering water.

³ Proc. U. S. Nat. Mus., vol. 58, 1920, p. 258.

⁴ Entomologia Parisiensis, pt. 1, p. 413.

⁵ Ent. Meddel., vol. 12, Heft 2, 1918, p. 218.

⁶ Bull. Ill. State Lab. Nat. Hist., vol. 4, 1895, pp. 178 and 270.

Head and thorax opaque, finely confluent punctate and entirely covered with a very fine, short, velvety, more or less glittering pubescence; abdomen somewhat less densely punctate, the pubescence correspondingly sparser. Head transverse with temples convexly sloping, in front view subtriangular with malar space longer than basal width of mandibles and mouth rather narrow; clypeus inflexed and truncate at apex, exposing the labrum; pubescence of clypeus and mandibles longer than that on rest of head; antennae of female rather short and strongly thickened toward apex, first flagellar joint shorter than second. Notauli strong, complete; scutellum weakly convex, not margined laterally; sternauli short; propodeum long, completely areolated, areola broadly hexagonal, costulae before middle, apical carina mucronate on each side, spiracles small, short oval; alar areolet large, the intercubiti nearly parallel; radial cell short; nervulus antefurcal; postnervulus broken below middle; nervellus reclivous, strongly broken either above or below middle; apical tarsal joints in female long, that of hind tarsus nearly or quite as long as second joint, claws large, strongly curved, simple. Abdomen in female rather broadly ovate, and apical segments short; first tergite with lateral carinae extending to apex, dorsal carinae nearly to apex.

Only one described North American species is referable to this genus: (*Cryptus*) *Trichocryptus hirtifrons* (Ashmead). To this may now be added the very distinct new species described below.

TRICHOCRYPTUS HIRTIFRONS (Ashmead)

Cryptus hirtifrons ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 411, male.

Cryptus cyaneiventris RILEY MS., Insect Life, vol. 3, 1890, p. 154.—HART, Bull. Ill. State Lab. Nat. Hist., vol. 4, 1895, pp. 178, 270. New synonyms.)

Apsilops hirtifrons ASHMEAD, Trans. Amer. Ent. Soc., vol. 23, 1896, p. 207.—DALLA TORRE, Cat. Hym., 1901-1902, p. 715, female.

Agrothereutes (Apsilops) hirtifrons VIERECK, Hym. Conn., (1916), 1917, pp. 330, 333.

(*Trichocryptus*) *hirtifrons* CUSHMAN, Proc. U. S. Nat. Mus., vol. 58, 1920, p. 259.

Originally described from a single Texan male; the female was described six years later from specimens from Illinois collected by C. A. Hart in association with (*Hydrocampa*) *Nymphula oblitalis* (Walker).

Type.—Cat. No. 2028, U.S.N.M.

In addition to the unique type male there are in the National collection 11 females from Columbus, Ohio; one from Havana, Illinois (ex *Hydrocampa*), one of the specimens taken by Hart; and one from Florida, reared March 26, 1888, from Pyralid on water lily, under Bureau of Entomology No. 4261°. The last mentioned is

the specimen recorded in Insect Life under "*Cryptus cyaneiventris* Riley MS." Three females and one male reared by Hart and loaned me by the Illinois State Natural History Survey have also been examined. The Illinois male has the red of the legs much paler than in the type and also has a small white spot on the scutellum, but seems not to differ otherwise.

The following characters of the female are given for comparison with the corresponding characters of the new species.

Scutellum and spot at apex of abdomen white; abdomen black with faint purplish reflection, apex of second tergite narrowly reddish; tibiae and tarsi black or blackish. Eyes longer than width of face, very slightly convergent below; temples strongly receding; their anteroposterior length much less than that of eye. Thorax much less than twice as long as deep (measured from middle of mesosternum to middle of scutellum); petiolar area longer than combined areola and basal area; legs slender, apical joint of hind tarsus slightly shorter than second joint; first tergite much less than half as broad at apex as long, petiole slender, dorsal carinae weak, spiracle at apical third; second tergite nearly as long as broad at apex; ovipositor slender, apex elongate sagittate.

TRICHOCRYPTUS BICOLOR, new species

Immediately distinguishable from *hirtifrons* (Ashmead) by its red abdomen.

Female.—Length 5.5 mm.; antennae 3 mm.; ovipositor 1 mm.

Head rather thick, temples rather broad, their antero-posterior length nearly equal to that of eye; eyes as long as width of face, distinctly convergent below. Thorax fully twice as long as deep; propodeum in profile straight above, precipitate behind, petiolar area shorter than combined areola and basal area; legs rather stout, apical joint of hind tarsus as long as second joint; wings long; areolet slightly convergent above; nervellus broken below middle. First tergite stout, barely twice as long as broad at apex, dorsal carinae strong, spiracles at about middle, petiole thick, flattened above and broader than deep; second tergite much broader at apex than long; ovipositor stout, sword-shaped, not apically sagittate.

Head and thorax entirely black, with blackish pubescence, antennae and palpi dark brown; wings faintly smoky; legs ferruginous with only the trochanters blackish; abdomen, except petiole, pale ferruginous, apex immaculate.

Type locality.—Sprague, Washington.

Type.—Cat. No. 40438, U.S.N.M.

One female taken July 16, 1922, by M. C. Lane.

TRICHESTEMA, new genus

Agrees with the above description of *Trichocryptus* Thomson except as follows: Malar space shorter than basal width of mandible; antennae in female only slightly thickened toward apex, first and second flagellar joints equal in length; propodeal spiracle long, slit-like; areolet with intercubiti strongly convergent above, radial cell long; abdomen in female lanceolate, the apical segments long.

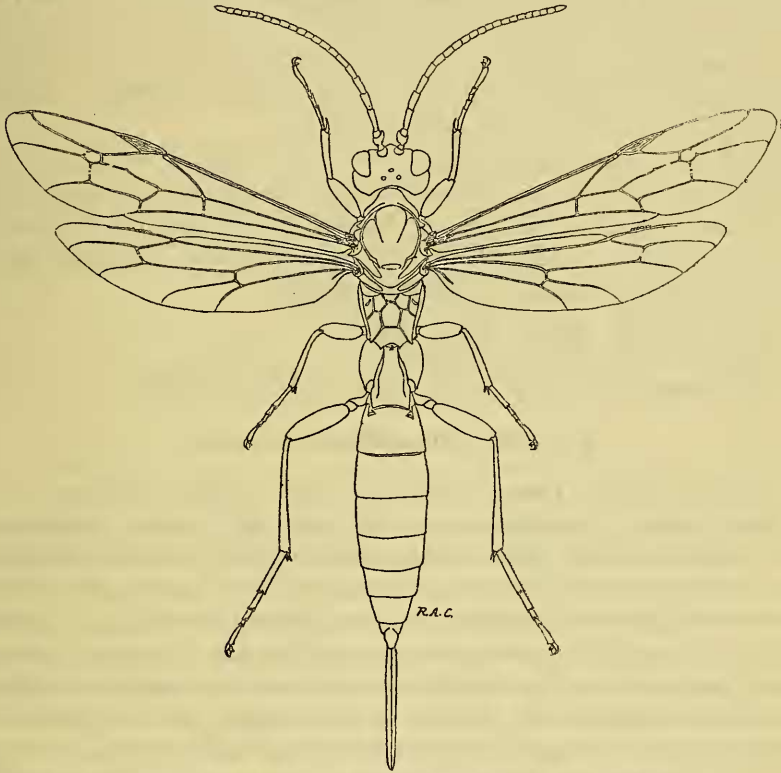


FIG. 1.—TRICHESTEMA HELCOSTIZOIDES CUSHMAN. DRAWN FROM TYPE

The long apical abdominal segments, and short, thick first tergite give this genus a habitus strongly reminiscent of *Helcostizus* Foerster.

The velvety pubescence probably indicates an association with water.

Genotype.—*Trichestema helcostizoides* Cushman, new species.

TRICHESTEMA HELCOSTIZOIDES, new species

Female.—Length 11 mm.; antennae 4.5 mm.; ovipositor 3 mm.

Head transverse, temples sloping, their antero-posterior length slightly less than that of eye; eyes about as long as their distance apart, parallel within; malar space slightly shorter than basal

width of mandible; clypeus less than half as long as broad. Thorax flattened dorsally, more than twice as long as deep; propodeum straight above, precipitate and concave behind, upper hind angles very prominent, but angulate rather than mucronate, areola and petiolar area confluent and together longer than petiolar area; legs, especially femora, stout; apical joint of hind tarsus as long as second joint; nervellus broken slightly above middle. Abdomen shining, finely and rather densely punctate; first tergite less than twice as long as broad at apex with very strong carinae, spiracle at apical third, petiole very broad, flat above; last three tergites about equal in length and only slightly shorter than fifth; ovipositor stout, sword-like, not apically sagittate.

Head and thorax black, pubescence silvery, palpi brown, scutellum white; legs ferruginous, trochanters and tarsi black, middle tibia at base and hind tibia throughout fuscous; wings grayish because of dense pubescence, veins black, stigma testaceous; abdomen black; second and third tergites somewhat reddish.

Type locality.—Bruce, South Dakota.

Type.—Cat. No. 40439, U.S.N.M.

One female taken August 24, 1923, by H. C. Severin.

EPHIALTES NIGROAENEUS, new species

Female.—Length 7 mm.; antennae 7 mm.; ovipositor 2 mm.

Head polished, unsculptured, and with only sparse pubescence; eyes sinuate within; face broader than vertex, its sides divergent below; clypeus small, separated at base, truncate at apex, weakly impressed and narrowly reflexed at apex; malar space as long as basal width of mandible; vertex narrow, ocell-ocular line much shorter than diameter of ocellus; temples narrow, and very sharply receding; antennae as long as body; flagellum very slender, its basal joint half as long again as second and fully ten times as long as thick. Thorax polished, without sculpture and almost without pubescence; notauli deep anteriorly; propodeum dorsally finely transversely aciculate, laterally very finely granularly opaque, posteriorly polished without carinae, but with prominent ridges on each side of petiolar area; tibiae and tarsi opaque and densely pubescent, legs otherwise polished and without vestiture; abdomen finely coriaceous, subopaque; tergites 1-5 with subapical transverse impressions, deep at sides and obsolescent in middle; first tergite without carinae and with the basal impression short.

Black; propodeum and abdomen aeneous; wings deeply infumate; legs black with purple reflections, extreme base of front and middle femora, hind femur except apex and apical joint of its trochanter ferruginous.

Type locality.—Cinchona, Jamaica.

Type.—Cat. No. 40440, U.S.N.M.

One female taken by C. C. Gowdey, August 5, 1926, and bearing his No. 1675.

EPHIALTES POLYCHROMUS, new species

Female.—Length 14 mm.; antennae 13 mm.; ovipositor 4 mm.

Head smooth, without sculpture except a few coarse subobsolete punctures on upper part of face; frons deeply concave; face hardly as broad as vertex, somewhat elevated medially and laterally, the elevations separated by rather deep longitudinal impressions; clypeus twice as broad as long, distinctly discreted, apically inflexed with a narrow reflexed margin, broadly, slightly concavely truncate; malar space little more than half as long as basal width of mandible; ocell-ocular line slightly shorter than diameter of ocellus; temples narrow and very sharply receding; eyes strongly sinuate within; antennae very nearly as long as body, flagellum very slender, slightly tapering toward apex, its basal joint more than a half longer than second. Thorax smooth; mesoscutum with rather dense suberased punctures, scutellum more sparsely and less distinctly punctured, mesopleurum and metapleurum with a few coarse subobsolete punctures; notauli distinct for only a short distance; propodeum coarsely transversely striate, the stria at top of apical slope very strong and setting off a rather distinct petiolar area which is less distinctly defined laterally, spiracles large ovate. Abdomen very finely coriaceous, coarsely, sparsely, and subobsoletely punctate on first five tergites; transverse impressions of tergites 2-5 distinct laterally, obsolete medially; first tergite without dorsal carinae, basal impression occupying about half its median length.

Head and thorax yellow with the following brownish markings: A transverse fascia on vertex including the posterior ocelli, a frontal mark inclosing the anterior ocellus, three stripes on mesoscutum, apex of scutellum, anterior and posterior margins of mesopleurum, a transverse fascia at base of propodeum extending entirely across and surrounding the spiracles, and the apical middle of propodeum; antennae fusco-ferruginous; front and middle legs yellow; the femora inside and the tibiae apically more reddish, the tarsi apically brown; hind coxae brown, yellow below and above except at apex, trochanters pale testaceous and yellow, femur bright ferruginous, tibia yellow with base narrowly and apex broadly fusco-ferruginous; tarsus with first joint yellow, rest fuscous; wings bright yellow, veins blackish, stigma testaceous; basal five tergites brown at base and apex, transversely yellow in middle; apical tergites ferruginous; sheath blackish.

Type-locality.—Santiago de Cuba.

Type.—Cat. No. 40441, U.S.N.M.

One female.

HEMITELES (APTESIS) HEMIPTERUS (Fabricius)

Synonym.—*Hemiteles insignipennis* SCHMIEDEKNECHT. (New synonymy.)

There are before me three females reared from cocoons of *Phytonomus posticus* and four females reared as secondary parasites of *Pyrausta nubilalis*, two of the latter through *Microgaster tibialis* Nees and two through *Eulimneria crassifemur* (Thomson).

One of the three from *Phytonomus* is fully winged and the two from *Eulimneria* are only slightly brachypterous, but are clearly not specifically different from the short-winged specimens. These three run to, and the fully winged one agrees perfectly with, *Hemiteles insignipennis* Schmiedeknecht.

SYRPHOCTONUS FOUTSI, new species

An anomalous species, perhaps generically distinct from *Syrphoctonus*, chiefly remarkable for its somewhat elevated clypeus, which is apically entire and not medially sulcate, and, in the female, for its apically attenuate abdomen. The nearest approach in the tribe to this form of clypeus is found in *Syrphoctonus vertebratus* Cushman, in which the clypeus, though of about the same form otherwise, has a fairly distinct median sulcus. The female of the latter species is unknown.

Female.—Length 6 mm.; antennae 4 mm.

Head shining with only the face and cheeks opaque; temples convexly narrowed; frons medially concave; ocell-ocular line a half longer than diameter of an ocellus; vertex medially elevated, slightly impressed next to eyes; face about twice as broad as long, convex, with rather dense very short pubescence; clypeus twice as broad as long, straight from base to apex, convex from side to side, the apex elevated, subtruncate and without a median sulcus; malar space slightly shorter than basal width of mandible; flagellum filiform, all joints distinctly longer than thick, first a half longer than second. Thorax hardly twice as long as deep, polished, sparsely and weakly punctate; propodeum rather coarsely rugoso-punctate, opaque; apical slope weakly impressed on either side of middle; second abscissa of cubitus twice as long as intercubitus; first brachial cell as broad as long, subdiscoideus below middle of postnervulus; nervellus strongly broken below middle; legs slender, hind tarsus much longer than tibia. Abdomen twice as long as head and thorax, attenuate beyond middle, first two tergites and base of third opaque, rest polished; first slightly longer than broad, broadest at spiracles; second distinctly longer than broad, longitudinally striate in basal middle, widening slightly toward apex; third to seventh deeply emarginate at apex, each successively smaller; eighth and genitalia very small.

Black, with the following markings white: Face with short orbital extensions above (in paratype the middle of face nearly to clypeus

is black), malar space and cheeks, clypeus, mandibles, palpi, propleura, lower and posterior margins and humeral angle of pronotum, cuneiform spots on sides of mesocutum, scutellum, and postscutellum, mesopleurum and sternum, except broad mark on upper pleurum and smaller one in position of sternauli, suture between meso- and metapleurum, and spot on metapleurum, antennae black, apical margin of scape and lower side of pedicel and of flagellum for two-thirds of its length white, all coxae and trochanters white, front and middle femora and tibiae pale stramineous, hind femur pale testaceous, its tibia white with extreme apex black; tarsi white, apical joints and small apices of basal joints of hind tarsi fuscous; wings hyaline, veins and stigma brownish, tegulae and radices white; abdomen immaculate above, sternites black, membrane white.

Male.—Antennae white beneath throughout; legs paler; abdomen not attenuate apically, more or less sculptured throughout, tergites not emarginate, second to sixth white at apex; otherwise like female.

Type locality.—Glen Echo, Maryland.

Type.—Cat. No. 40442, U.S.N.M.

Two females and one male, all taken by Robert M. Fouts, the allotype at Washington, District of Columbia.

Genus HIMERTUS Thomson

? *Himerta* FOERSTER, Verh. nat. Ver. preuss. Rheinland, vol. 25, 1868, p. 200.

Himertus THOMSON, Opusc. Ent., fasc. 9, 1883, p. 926. Genotype.—(*Himertus bisannulatus* Thomson) = *Mesoleptus defectivus* Gravenhorst.

Clepsiorthus DAVIS, Trans. Amer. Ent. Soc., vol. 24, 1897, p. 325 (not Foerster). (New synonymy.) Genotype.—*Mesoleptus? rubiginosus* Cresson.

Neoprotarchus CUSHMAN, Proc. U. S. Nat. Mus., vol. 64, art. 20, 1924, p. 10. (New synonymy.) Genotype.—*Neoprotarchus ater* Cushman.

Since the publication of *Neoprotarchus* the National Museum has acquired a specimen of the genotype of *Himertus* as well as specimens of another North American species. Comparison of these specimens as well as specimens of *Clepsiorthus rubiginosus* (Cresson) shows no real generic differences. Even the clypeal tooth, characteristic of *Neoprotarchus ater*, can be considered of no more than specific significance.

Clepsiorthus of Davis is not the same as Foerster's *Clepsiorthus*. The genotype will not run in Foerster's key to that genus, differing in the key characters under couplets 31 and 33, since the clypeus is distinctly transversely impressed at apex and the alar areolet is lacking. In addition to the genotype, *Clepsiorthus flavidus* Davis seems also to belong to *Himertus*.

I believe that Schmiedeknecht has erred in placing *Himertus* in the Euryproctina, for the petiolar foveae (glymmae) are quite as

distinct in *defectivus* as in *Genarches* (as represented by *facialis* [Gravenhorst]), which he placed in the Mesoleiina. In fact, *Himertus* and *Genarches* are very doubtfully distinct generically, the presence of the alar areolet in *Genarches* and its absence in *Himertus* being the only apparent character for separating them. I fail to find on the only specimen of *Genarches* available to me the tooth described by Foerster as being located near the apex of the third joint of the maxillary palpus. Both *Himertus* and *Genarches* belong, in my opinion, in the Mesoleiina where they are closely related to *Protarchoides* Cushman.

The following key will separate the four North American species here referred to *Himertus*.

- | | |
|--|-------------------------------|
| 1. Black species..... | 2 |
| Rufous or ferruginous species..... | <i>rubiginosus</i> (Cresson). |
| 2. Clypeus with a sharp tooth at junction of basal and apical areas..... | <i>ater</i> (Cushman). |
| Clypeus without such a tooth..... | 3 |
| 3. Front and middle tarsi "reddish brown"..... | <i>flavidus</i> (Davis). |
| Front and middle tarsi yellow..... | <i>dakota</i> , new species. |

HIMERTUS ATER (Cushman) (new combination)

Neoprotarchus ater CUSHMAN, Proc. U. S. Nat. Mus., vol. 64, art. 20, 1924, p. 10, fig. 4.

The type is female, not male as stated in the original description.

HIMERTUS FLAVIDUS (Davis) (new combination)

Clepsiorthus flavidus DAVIS, Trans. Amer. Ent. Soc., vol. 24, 1897, p. 326.

Apparently very closely allied to *dakota* and perhaps identical with it.

HIMERTUS DAKOTA, new species

Female.—Length 12 mm.; antennae 10 mm.

Structurally practically identical with *ater* (Cushman) except that the clypeal tooth is lacking, the malar space is slightly longer, the longitudinal groove of propodeum and first tergite are much less distinct, the inner hind calcarium is barely half as long as basitarus, and the postnervulus is broken distinctly above the middle.

In color the same as *ater* except as follows: Facial spot divided medially and flanked on either side by a reddish spot; all tarsal joints except apical, front tibia entirely, middle tibia except reddish apex, and somewhat more than basal half of hind tibia pale yellow; hind tarsus somewhat fuscous at base.

Type locality.—Spearfish, South Dakota.

Type.—Cat. No. 40443, U.S.N.M.

One female taken July 26, 1924.

Except for slightly larger size the paratype is practically identical with the type.

Genus PHRUDUS Foerster

The name *Phrudus* was first used by Foerster in his *Synopsis der Familien und Gattungen der Ichneumoniden*,⁷ but Foerster neither designated a genotype nor included species in the genus, and the only description of the genus consists of the characters leading to it in his key.

In 1886 Bridgman⁸ also described a genus *Phrudus* based on the single species, *Phrudus monilicornis* Bridgman.

In 1901 Strobl⁹ described his *Ktenostilpnus* with *aequaearticulatus* Strobl as genotype.

In 1914 Roman¹⁰ brought forth his genus *Vendolus*, based on *Vendolus stilpninus* Roman.

Roman¹¹ later synonymized *Ktenostilpnus* and *Vendolus* with *Phrudus* Bridgman and his own *Vendolus stilpninus* with *monilicornis* Bridgman.

Thomson, Roman, and Morley credit the genus to Bridgman, while Schmiedeknecht, Dalla Torre, and Viereck treat it as Foerster's. That Bridgman's genus is the same as Foerster's there can, I think, be little doubt. In Foerster's key to the Ctenopelmoidae *monilicornis* will certainly run to *Phrudus*. Also, it agrees with Foerster's unpublished description of his genus, which, translated, is as follows:

Antennae 20-jointed, first flagellar joint a little longer than second; clypeus distinctly separated; propodeum distinctly areolated; first tergite narrow, spiracles in middle; radius originating at middle of stigma; areolet irregular, sessile; cubitus obsolete beyond areolet; median vein in hind wing effaced basally; nervellus not broken.

Furthermore, Bridgman apparently permitted Thomson to see his species before its publication, for he credits Thomson with having suggested the name. And Thomson habitually used Foerster's names without crediting them to Foerster, simply using the latter author's work as a convenient source of generic names. The synonymy of the genus is therefore as follows:

Genus PHRUDUS (Foerster) Bridgman

Phrudus FOERSTER, Verh. Nat. Ver. Preuss. Rheinl., vol. 25, 1868, p. 196.
No species included.

Phrudus BRIDGMAN, Trans. Ent. Soc. Lond., 1886, p. 360. Type.—*Phrudus monilicornis* Bridgman.

Phrudus (Bridgman) THOMSON, Opusc. Ent., fasc. 12, 1888, p. 1258.

⁷ Verh. Naturh. Ver. Preuss. Rheinland., vol. 25, 1868, p. 148.

⁸ Trans. Ent. Soc. London, 1886, p. 361.

⁹ Mitt. Nat. Ver. Steler., Jahrgang 1900, Heft. 37, 1901, p. 256.

¹⁰ Arch. Zool., vol. 9, No. 2, 1914, p. 35.

¹¹ Ark. Zool., vol. 17A, no. 4, 1924, p. 32.

Ktenostilpnus STROBL, Mitth. Nat. Ver. Steiermark, Jahrg. 1900, Heft 37, 1901, p. 256. Type.—*Ktenostilpnus aequacarticulatus* Strobl.

Phrudus (Foerster) SCHMIEDEKNECHT, Hym. Mitteleur., 1907, p. 620.

Phrudus (Bridgman) MORLEY, Brit. Ichn., vol. 4, 1911, p. 258.

Phrudus (Foerster) SCHMIEDEKNECHT, Opusc. Ichn., fasc. 32, 1912, p. 2489.

Vendolus ROMAN, Ark. Zool., vol. 9, No. 2, 1914, p. 35. Type.—*Vendolus stilpninus* Roman.

Phrudus (Foerster) VIERECK, Bull. 83, U. S. Nat. Mus., 1914, p. 116.

Phrudus (Bridgman) ROMAN, Ark. Zool., vol. 17A, No. 4, 1924, p. 32.

There has been wide variance of opinion as to the systematic position of the genus. Foerster originally placed it in his family Ctenopelmoidae (Tribe Ctenopelmini Ashmead), while Thomson considered it related to *Grypocentrus* Ruthe. Bridgman quoted Thomson's opinion and placed his description of the genus among those of other Tryphoninae. Schmiedeknecht leaves it in close proximity to *Grypocentrus*, though commenting on its similarity in habitus to *Stilpnus* and *Atractodes*.

Strobl placed his *Ktenostilpnus* in the Stilpnini, where Morley also considers it to belong with "no shadow of doubt." Roman places *Vendolus* in the Cremastini where he considers it allied to *Demophorus* Thomson. In his later publications he reiterates his belief that this is the proper position for the genus.

Phrudus is more or less anomalous wherever it is placed. It is certainly not Stilpnine for it lacks the principal recognition character of that group, that is the combined areola and petiolar area extending practically to the base of the propodeum. Nor do I believe that the short abscissula is sufficient ground unsupported for relegating it to the Cremastini. In my opinion it is less anomalous in its original placing among the Tryphoninae than elsewhere.

Phrudus has not heretofore been recorded from North America. The following two new species from this continent have recently come to hand. One of these lacks the areolet but is, I think, not generically distinct.

PHRUDUS DAKOTA, new species

Female.—Length 2.6 mm.

Slender with thorax compressed; that is, slightly deeper than broad. Head polished, nearly as long as broad and in side view fully as long as deep; temples slightly sloping; vertex elevated; frons strongly convex; face transversely striate-punctuate, prominent above, narrower than frons and fully twice as broad as long; clypeus sculptured as face, separated, three times as broad as long, apex sinuately curved; malar space much narrower than basal width of mandible; cheek fully three times as broad as malar space, strongly sloping; eyes bulging, broadly oval; antennae hardly half as long as

body, stout, flagellum with 13 joints, first joint distinctly longer than thick, others to sixth gradually decreasing in length, seventh to twelfth about as broad as long, apical joint elongate-ovate, more than twice as long as thick. Thorax nearly twice as long as deep; mesoscutum longer than broad, polished and sparsely punctate, notauli briefly distinct; scutellum elongate, strongly convex, polished with faint scattered punctures, mesopleurum with a broad band of oblique striation in middle, polished above and below; metapleurum rather densely punctate; propodeum polished, areola, middle lateral areas and margins of petiolar areas irregularly rugose; completely



FIG. 2.—*PHRUDUS DAKOTA* CUSHMAN. DRAWN FROM TYPE

areolated, petiolar area occupying only about half median length, areola much longer than broad, areolet obliquely pentagonal; legs stout, hind femur hardly three times as long as deep. Abdomen rather narrow, nearly four times as long as broad, polished; first tergite very slender, decurved, longitudinally striate above; second nearly as long as broad at apex.

Black; legs pale testaceous to stramineous, antennae testaceous in basal half, fuscous at apex; wings hyaline, venation brown.

Type locality.—Spearfish, South Dakota.

Type.—Cat. No. 40445, U.S.N.M.

One specimen taken July 26, 1924.

PHRUDUS EXAREALATUS, new species

Distinct from *dakota* in the lack of the areolet and stouter body and legs.

Female.—Length, 2 mm.

Stout, thorax hardly compressed, abdomen barely three times as long as broad. Head much broader and deeper than long; temples strongly rounded; vertex moderately elevated, not narrower than frons, about twice as broad as long, more coarsely sculptured than face, apex rounded; malar space nearly as long as basal width of mandible, and nearly half as long as width of cheek; eyes less bulging and more elongate than in *dakota*; antennae fully half as long as body, subapical joints thicker than long, apical joint less than twice as long as thick. Thorax distinctly more than half as deep as long; mesoscutum as broad as long, polished; scutellum and mesopleurum polished, without sculpture; metapleurum and propodeum indistinctly sculptured; petiolar area occupying more than half median length, areola slightly longer than broad with costulae in middle; legs stout, hind femur hardly three times as long as deep. Abdomen about three times as long as broad; first tergite slender, decurved, longitudinally striate above; second much broader at apex than long.

Black; legs testaceous; antennae fuscous, scape, pedicel, and base of flagellum testaceous; wings hyaline, venation brown.

Type locality.—Cranberry Lake, New York.

Type.—Cat. No. 40446, U.S.N.M.

One female taken by E. A. Hartley on August 7, 1924.

PODOGASTER CACTORUM, new species

In Szepligeti's key to the species of *Podogaster*¹² this species will run to couplet 2, where it agrees with the first alternate in having the discoidal and brachial cells of equal length and with the second in its entirely hyaline wings.

In Morley's key¹³ it runs to couplet 2 (5), agreeing with 2 in the first and third items and with 5 in the second.

Female.—Length 12 mm.; antennae 7 mm.; ovipositor 2 mm.

Head from above weakly transverse, the temples extending straight back for most of their length, then curving sharply mesad to join the occiput; occiput deeply concave, the bounding carina developed only at top, where it is almost contiguous with the ocelli; diameter of lateral ocellus equal to ocell-ocular line; eyes convergent below, almost contiguous to clypeal foveae and to mandibles, at their lower extremity less than half as far apart as at vertex, concavely arcuate within; face densely punctate, frons sparsely so; clypeus acutely

¹² Ann. Mus. Nat. Hung., vol. 4, 1906, p. 122.

¹³ Rev. Ichn. Brit. Mus., pt. 2, 1913, p. 60.

pointed; antennae slender, tapering slightly toward apex, scape and pedicel of nearly equal length, scape squarely truncate at apex. Thorax largely rugose; pronotum polished above, longitudinally rugose below; mesoscutum irregularly transversely rugose, middle of three lobes granularly opaque to subopaque; scutellum irregularly rugose at sides, the median groove polished, basal fovea coarsely foveolate; postscutellum transversely carinate; mesopleurum above longitudinally striate with a large smooth speculum, below coarsely punctate, sternum more finely and sparsely punctate, sternauli short but deep; combined propodeum and metathorax subhemispherical, coarsely reticulate rugose, the propodeal neck constricted, spiracles elongate oval; wings small, discoideus and subdiscoideus of equal length and continuous, the second discoidal cell therefore pointed at base, postnervulus strongly reclivous; longitudinal veins in hind wing wanting beyond cross veins, intercubittella and cubittella forming an unbroken curve. Abdomen granularly opaque, very slender, first and second tergites equal in length and together comprising more than half total length of abdomen.

Head and thorax yellow with the following black or blackish markings: spot on vertex enclosing the ocelli, occipital spot, longitudinal mark on each lobe of mesoscutum, basal and longitudinal grooves of scutellum, lateral areas of scutellum and postscutellum, a median and two lateral stripes on propodeum joined at base by a transverse band, and a longitudinal spot on mesopleurum; wings hyaline, venation black; front leg yellow, with femur largely stramineous; tibia below and tarsus reddish stramineous; middle legs similarly marked but the stramineous partly replaced by piceous; hind legs largely black, coxa except outer side and trochanter and femur at base below yellow, femur dark reddish below, calcaria yellowish. Abdomen blackish above, ferruginous laterally beyond second tergite.

Male.—Essentially like female, but eyes a little less strongly convergent.

Type locality.—Concordia, Entre Rios, Argentina.

Host.—*Cactoblastis cactorum*.

Type.—Cat. No. 40447, U.S.N.M.

One of each sex reared in February, 1925, by Alan P. Dodd under his No. 106.

CREMASTUS (ZALEPTOPYGUS) MORDELLISTENAE Cushman

A series of specimens has been received from Charles H. Hicks, of the University of Colorado, and reared by him under his numbers 333 and 567 from a species of *Mordellistena*. The females show that the type is not normally colored, apparently stained. In the normal female all the markings of the head, the mandibles, and the

tegulae are yellow rather than piceous. The hind coxae vary from entirely black to largely reddish piceous, while the abdomen beyond the second tergite is normally largely and sometimes almost entirely reddish.

Genus CERATOGASTRA Ashmead

Ceratosoma CRESSON, Proc. Ent. Soc. Phila., vol. 4, 1865, p. 281.

Ceratogastra ASHMEAD, Can. Ent., vol. 32, 1900, p. 368.

Ceratogaster DALLA TORRE, Cat. Hym., 1901-1902, p. 62.

In addition to the two species originally assigned to *Ceratosoma*, the following species have since been referred to the genus under one or another of the three names:

([*Exetastes*] *Ceratosoma rufa* [Provancher])=*Dyspetes rufus* (Provancher). (New combination.)

A homotype (by Gahan) of this species is in the National Collection and is the basis for its transfer to *Dyspetes*. The occiput is not medially impressed as in the genotype, the impression being represented only by a median angulation of the occipital carina; and the scutellar and propodeal carinae are stronger than in the genotype; but I see no good reason for not referring it to *Dyspetes*.

(*Ceratosoma rubyata* Davis)=*Ceratogastra ornata* (Say).

As pointed out by Cushman and Gahan,¹⁴ the type of *rubyata* is a cyanide-stained specimen of Say's species.

(*Agathis ornata* Say)=*Ceratogastra ornata* (Say).

(*Agathis polita* Say)=*Ceratogastra polita* (Say).

Say's two species were transferred to the present genus by Cushman and Gahan, who also synonymized the genotype *fasciata* (Cresson) with *ornata*.

This leaves three species in the genus: *ornata* (Say), *polita* (Say), and *apicalis* (Cresson), to which is now added the following new species. The four may be distinguished by the following key:

1. Only the basal two tergites yellow at apex-----*polita* (Say).
At least the first three tergites yellow at apex----- 2
2. Head behind eyes barely as broad as eyes; wings strongly infumate at apex; only first three tergites yellow at apex-----*trifasciata*, new species.
Head behind eyes broader than eyes; wings not distinctly infumate at apex; all tergites apically yellow----- 3
3. Front wings apically hyaline-----*apicalis* (Cresson).
Front wings uniformly deeply yellowish-----*ornata* (Say).

CERATOGASTRA TRIFASCIATA, new species

Female.—Length 14 mm.; antennae 8 mm.

Temples barely as broad as eyes; face and frons of equal width; eye nearly one-fifth longer than width of face; clypeus coarsely

¹⁴ Proc. Ent. Soc. Wash., vol. 23, 1921, p. 154.

and rather densely punctate; malar space distinctly less than half as long as basal width of mandible; antennae more than half as long as body, subapical joints only very slightly broader than long. Teeth of claws larger than usually, front and middle claws with three, hind claws with two teeth. Abdomen strongly attenuate from apex of third tergite, first three tergites comprising less than half total length of abdomen, tergites 5-7 hardly telescoped; oblique furrows of second tergite reaching base but not meeting, their extended angle acute; first tergite distinctly longer than broad.

Black, with the following markings yellow: Face, clypeus, mandibles, scape below, frontal and posterior orbits (the latter not confluent across vertex but stopping at top of eyes), anterior lateral margins of mesoscutum, scutellum and a small spot on each side in front, postscutellum and a small spot on each side, tegulae, humeral angles of pronotum, subalar tubercle, streak along prepectal carina, a broad band covering apices of propodeum and metapleura, and a broad apical band on each of the first three tergites; flagellum entirely black; coxae black; trochanters yellow, the basal joints more or less testaceous; front and middle femora testaceous, more or less yellow in front toward apex; hind femur nearly black piceous; front and middle tibiae and all tarsi yellow; hind tibia yellow at base, blackish at apex; wings deeply stained with yellowish, broad apices and median cell infumate; median, basal and discoidal veins blackish, other veins paler, stigma pale testaceous.

Type locality.—Forest Hills, Massachusetts.

Type.—Cat. No. 40448, U.S.N.M.

One female captured October 3, 1924, by George Salt.

